

(LiMn₂F₄), nonstoichiometric 815609-28-0D, Lithium manganese sulfide (LiMn₂S₄), nonstoichiometric 815609-30-4D, Chromium lithium fluoride (CrLiF₂), doped, nonstoichiometric 815609-31-5D, Lithium manganese fluoride (LiMnF₂), doped, nonstoichiometric 815609-32-6D, Lithium strontium fluoride (LiSrF₂), doped, nonstoichiometric 815609-34-8D, Lanthanum lithium fluoride (LaLiF₂), doped, nonstoichiometric 815609-36-0D, Cerium lithium fluoride (CeLiF₂), doped, nonstoichiometric RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)

(manganese anode active material production for lithium ion battery)

L18 ANSWER 2 OF 4 REGISTRY COPYRIGHT 2007 ACS on STN

RN 815609-26-8 REGISTRY

ED Entered STN: 18 Jan 2005

CN Lithium manganese fluoride (LiMn₂F₄) (9CI) (CA INDEX NAME)

MF F . Li . Mn

AF F4 Li Mn2

CI TIS

SR CA

LC STN Files: CA, CAPLUS

DT.CA CAplus document type: Patent

RLD.P Roles for non-specific derivatives from patents: USES (Uses)

Component	Ratio	Component Registry Number
F	4	14762-94-8
Mn	2	7439-96-5
Li	1	7439-93-2

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 142:97386 CA

TI Manganese based anode active material production for lithium ion battery

IN Kwon, Ho Jin

PA Samsung SDI Co., Ltd., S. Korea

SO Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7

DT Patent

LA Korean

IC ICM H01M010-36

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 49

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI KR 2001063879	A	20010709	KR 1999-61983	19991224

PRAI KR 1999-61983 19991224

AB A manganese based anode active material is provided for efficient preparation of the Mn-based material having improved life time at high temperature, thermal stability and electrochem. properties by utilizing specific materials capable of reverse intercalation and deintercalation of lithium ions. The Mn based anode active material having spherical particles of 20-50- μ m diameter agglomerated with microfine particles of \geq 1 μ m-diameter is selected from LixMO₂, LixMnS₂, LixMF₂, LixMnO₂-zF_z, LixMnO₂-zSz, LixMnO₂-zPz, LixMn_{1-y}MyO₂, LixMn_{1-y}MyO₂-zSz, LixMn₂O₄, LixMn₂S₄ and LixMn₂F₄ (where x=0.9-1.1; y=0-0.5; z=0-1.95; M is Mg, Al, Cr, Fe, Mn, Sr, La, Ce and their combinations). The active material is prepared by adding organic solvent to lithium and manganese salts to form a mixture; agitating and vaporizing the solvent to form a precursor; and thermally

processing the precursor.

ST manganese anode prodn lithium ion battery

IT Secondary batteries
(lithium, cathodes; manganese anode active material production for lithium ion battery)

IT Dissolution

Heat treatment
(manganese anode active material production for lithium ion battery)

IT Salts, uses
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manganese anode active material production for lithium ion battery)

IT Fluorides, uses
Sulfides, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(manganese anode active material production for lithium ion battery)

IT Oxides (inorganic), uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(oxide phosphides; manganese anode active material production for lithium ion battery)

IT Oxides (inorganic), uses
Sulfides, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(oxide sulfides; manganese anode active material production for lithium ion battery)

IT Fluorides, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(oxyfluorides; manganese anode active material production for lithium ion battery)

IT 7439-93-2D, Lithium, salts 7439-96-5D, Manganese, salts
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manganese anode active material production for lithium ion battery)

IT 12003-67-7D, Aluminum lithium oxide (AlLiO_2), doped, nonstoichiometric
12017-96-8D, Chromium lithium oxide (CrLiO_2), doped, nonstoichiometric
12022-46-7D, Iron lithium oxide (FeLiO_2), doped, nonstoichiometric
12057-17-9D, Lithium manganese oxide (LiMn_2O_4), nonstoichiometric
12142-59-5D, Lanthanum lithium oxide (LaLiO_2), doped, nonstoichiometric
12162-79-7D, Lithium manganese oxide (LiMnO_2), doped, nonstoichiometric
39327-44-1D, Lithium fluoride (LiF_2), doped, nonstoichiometric
57349-02-7D, Cerium lithium oxide (CeLiO_2), doped, nonstoichiometric
147551-83-5D, Lanthanum lithium manganese oxide ($(\text{La}, \text{Mn})\text{LiO}_2$), doped, nonstoichiometric 195144-63-9D, Lithium oxide (LiO_2), doped, nonstoichiometric 367267-66-1D, Iron lithium manganese oxide ($\text{Fe}(\text{Li}, \text{Mn})\text{O}_2$), doped, nonstoichiometric 425622-71-5D, Aluminum lithium manganese oxide ($(\text{Al}, \text{Mn})\text{LiO}_2$), doped, nonstoichiometric 435268-41-0D, Chromium lithium manganese oxide ($(\text{Cr}, \text{Mn})\text{LiO}_2$), doped, nonstoichiometric 815609-07-5D, Iron lithium fluoride (FeLiF_2), doped, nonstoichiometric 815609-08-6D, Lithium strontium oxide (LiSrO_2), doped, nonstoichiometric 815609-09-7D, Lithium manganese oxide sulfide (LiMn(O,S)_2), nonstoichiometric 815609-10-0D, Lithium manganese fluoride oxide (LiMn(F,O)_2), nonstoichiometric 815609-11-1D, Lithium manganese oxide phosphide (LiMn(O,P)_2), nonstoichiometric 815609-13-3D, Lithium manganese sulfide (LiMnS_2), nonstoichiometric 815609-14-4D, Lithium manganese strontium oxide ($\text{Li}(\text{Mn}, \text{Sr})\text{O}_2$), doped, nonstoichiometric 815609-15-5D, Cerium lithium manganese oxide ($(\text{Ce}, \text{Mn})\text{LiO}_2$), doped, nonstoichiometric 815609-16-6D, Lithium magnesium manganese oxide ($\text{Li}(\text{Mg}, \text{Mn})\text{O}_2$), doped, nonstoichiometric 815609-17-7D, Lithium magnesium fluoride (LiMgF_2), doped, nonstoichiometric 815609-18-8D, doped, nonstoichiometric 815609-19-9D, Aluminum lithium manganese oxide sulfide

((Al,Mn)Li(O,S)2), doped, nonstoichiometric 815609-20-2D, Chromium lithium manganese oxide sulfide ((Cr,Mn)Li(O,S)2), doped, nonstoichiometric 815609-21-3D, Iron lithium manganese oxide sulfide ((Fe,Mn)Li(O,S)2), doped, nonstoichiometric 815609-22-4D, doped, nonstoichiometric 815609-23-5D, doped, nonstoichiometric 815609-24-6D, Cerium lithium manganese oxide sulfide ((Ce,Mn)Li(O,S)2), doped, nonstoichiometric 815609-25-7D, Aluminum lithium fluoride (AlLiF₂), doped, nonstoichiometric 815609-26-8D, Lithium manganese fluoride (LiMn₂F₄), nonstoichiometric 815609-28-0D, Lithium manganese sulfide (LiMn₂S₄), nonstoichiometric 815609-30-4D, Chromium lithium fluoride (CrLiF₂), doped, nonstoichiometric 815609-31-5D, Lithium manganese fluoride (LiMnF₂), doped, nonstoichiometric 815609-32-6D, Lithium strontium fluoride (LiSrF₂), doped, nonstoichiometric 815609-34-8D, Lanthanum lithium fluoride (LaLiF₂), doped, nonstoichiometric 815609-36-0D, Cerium lithium fluoride (CeLiF₂), doped, nonstoichiometric
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(manganese anode active material production for lithium ion battery)

L18 ANSWER 3 OF 4 REGISTRY COPYRIGHT 2007 ACS on STN
RN 289713-47-9 REGISTRY
ED Entered STN: 20 Sep 2000
CN Lithium manganese fluoride (9CI) (CA INDEX NAME)
MF F . Li . Mn
CI TIS
SR CA
LC STN Files: CA, CAPLUS, USPATFULL
DT.CA CAplus document type: Patent
RL.P Roles from patents: PREP (Preparation); USES (Uses)

Component	Ratio	Component Registry Number
F	x	14762-94-8
Mn	x	7439-96-5
Li	x	7439-93-2

4 REFERENCES IN FILE CA (1907 TO DATE)
4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 141:57110 CA
TI Metal fluorides as electrode materials for rechargeable batteries
IN Amatucci, Glenn G.
PA USA
SO U.S. Pat. Appl. Publ., 26 pp., Cont.-in-part of U.S. Pat. Appl. 2004
62,994.
CODEN: USXXCO
DT Patent
LA English
IC ICM H01M004-58
ICS C01D003-02
NCL 429231950
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004121235	A1	20040624	US 2003-721924	20031125
	US 2004062994	A1	20040401	US 2002-261863	20021001
	US 2006019163	A1	20060126	US 2005-177729	20050708
PRAI	US 2002-261863	20021001			
	US 2002-429492P	20021127			
	US 2003-721924	20031125			